

ONE HUNDRED AND FIFTY YEARS OF INDIANA AGRICULTURE



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ONE HUNDRED AND FIFTY YEARS OF INDIANA AGRICULTURE

by

DAVE O. THOMPSON, SR. and WILLIAM L. MADIGAN

Purdue University

INDIANA HISTORICAL BUREAU

Indianapolis

1969



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FOREWORD

The history of Indiana is inseparably interlocked with the history of Hoosier agriculture. It is therefore appropriate that this volume be concerned with what always has been and still is the most important single industry in Hoosierland. Only in the last generation has Indiana shifted from primarily an agrarian state to an urban state. The phenomenal scientific advances in agriculture in the last three decades have freed us from bondage to the soil. The agricultural revolution has made possible our shift to what is now primarily an urban and industrial society.

When Indiana assumed her statehood in 1816, perhaps more than 95 per cent of its people were actively engaged in production of food. Today we have about six per cent of our population actively engaged in food production. Our commercial agriculture in this state claims approximately four per cent of our total working force.

Whereas a century and a half ago one farm worker could feed perhaps two or three other persons (mostly family members), one worker today on our good commercial Hoosier farms produces enough food for 150 to 200 persons.

This spectacular increase in agricultural productivity has freed our creative talents for the pursuit of things other than the production of food and fiber. Our people are better fed, at lower relative cost, than in any other nation in the world. Never in history have so many owed so much to so few.

The history of Indiana agriculture is essentially the history of people. This volume describes the life and activities of pioneers, settlers, builders, experimenters, mechanics, and finally agricultural scientists.

It is fitting that Periods I and II were written by Dave O. Thompson Sr., a long time worker for a scientific agriculture and a better Indiana. L. E. Hoffman, retired director of Agricultural Extension at Purdue University, assisted Mr. Thompson in the research on the first one hundred years. When death came to Mr. Thompson Oct. 22, 1965, at the age of 84, he had only begun the research on Period III.

The account of the last third of the Sesquicentennial period is a summary of events and innovations in an agricultural revolution.

Period III was written by William L. Madigan, assistant professor of agricultural information at Purdue University. He also edited Periods I and II of this monograph.

Dave Thompson's productive life spanned nearly half of Indiana's history as a state. Born on a Wisconsin farm, he graduated from the University of Wisconsin in 1906 and served in various educational and promotional posts in Indiana, in the Midwest and in the nation. He served as a Cooperative Extension Agent in Wisconsin, as a livestock specialist at Purdue University and later, as the first farm advisor in McLean County, Illinois. Mr. Thompson was the first executive secretary of the Illinois Agricultural Association and aided in the establishment of the American Farm Bureau Federation.

From 1926 to 1945, he was a staff member of *Prairie Farmer*, published in Chicago, as a feature writer and associate editor. During these years he also pioneered in farm programs broadcast by Radio Station WLS in Chicago. When he retired in 1952, Mr. Thompson was agricultural consultant to the Grocery Manufacturers Association of America. He remained active in agricultural affairs, serving on the staff of *The Indiana Farmer* and writing *Fifty Years of Cooperative Extension Service in Indiana*, which appeared in 1963.

No man knew Indiana better than Dave Thompson. There was no county his foot had not touched, no farm home his pen had not reached, no rural community unswayed by his philosophy. He was both the creation and the creator of Hoosier homespun philosophy. Dave Thompson believed in people. He understood the power for good of an educated populous. In his latter years, Dave Thompson always delighted in recounting the progress of Indiana agriculture and in assessing its contribution to our great Hoosier society. Dave Thompson was a vibrant part of that revolution. It is fitting that his final mortal effort should be the production of this volume. It is to the memory of that great and loyal Hoosier that this volume is dedicated.

HASSIL E. SCHENCK

Member, Indiana Sesquicentennial Commission

Because of the continuing interest in this booklet and an extensive classroom use, it is reprinted by the Indiana Historical Bureau.

H. H. H.

Indianapolis, 1969

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ONE HUNDRED AND FIFTY YEARS OF INDIANA AGRICULTURE

PERIOD I

1816-1860

THE LAY OF THE LAND

The terrain of Indiana was laid in a compact piece of land—its forests, swamps, and prairies formed through millions of years by that finest sculptor, Nature herself. An inland area, it is traversed by small rivers flowing into large rivers. It includes the southern tip of Lake Michigan by design of the pioneer boundary makers. Its southern boundary is the Ohio River.

Situated in the middle of the Old Northwest Territory, Indiana lay in the path of land-seeking Carolinians, Virginians, and Kentuckians. From the East, boats carried industrial and agricultural products down the Ohio River to the Mississippi and to the markets of the world through New Orleans.

Indian and animal trails spread toward the north through the forests. Indian corn, game and pelts offered sustenance and trade. Word went back East by officials, travelers and by messages of the pioneers that here was a land where a family could settle on fertile soil if it had the "gumption" to get there by boat or overland trail.

So settlers came; some were killed by Indians who saw them as trespassers, others died of disease, but most lived to become the first Caucasian citizens. They founded an agricultural economy based on fertile, well-watered land, with climate suited to crops of trees, grasses, cereals, and livestock. Their history is the history of early Indiana since most of them lived on and earned their livelihood from the land.

A French-Irishman, David Baillie Warden, in reporting a survey of the United States, said of Indiana in 1819, "The common depth of the soil is from two to three feet; but along the Wabash, in forming wells, it was found to be 22 feet, and underneath a stratum of fine white sand was discovered."

First Indiana Territorial Governor, William Henry Harrison, wrote:

"The finest country in all the western world is that which is bounded eastwardly by the counties of Wayne, Franklin, and in part by Dearborn, Switzerland, and Jefferson; westward by the tract called the New Pur-

chase; and extending northwardly some small distance beyond the Wabash. This tract, containing perhaps 10,000,000 of acres, is principally the property of the Miami tribe of Indians; part of it of the Miamis and Delawares. It includes all of the headwaters of the White River, and the branches of the Wabash which fall in from the south and southeast."

The extent of Indiana's navigable waters was recorded in 1819 by one of the many travelers who came to investigate. He reported:

"The Ohio washes the southern boundary of Indiana for a distance of 472 miles; the Wabash is navigable for 470 miles; White and its forks, 160; Petoka, 30; Blue, 40; Whitewater, 40; Rocky, 45; Pomme, 30; Massassinway, 45; Eel and Little, 60; western tributaries of the Wabash, 330; Elkhart and part of St. Joseph's of Lake Michigan, 100; St. Joseph's of the Miami and Panther's Creek, 75; Great and Little Ken-nomic, 120; Chemin, 40."

Of these water highways, the Wabash was the chief route to the interior. It was navigable "from its mouth to the rapids of Ouiatenon (near Lafayette) for keel boats and barges drawing three feet of water. Above this village small boats ascend nearly 200 miles farther to within six miles of St. Mary's River, ten of Fort Wayne, and eight of the St. Joseph's flowing into the Miami of the Lakes."

Indiana soil, then as now, was adapted to growing maize, wheat, oats, rye, hemp, tobacco, and most of the fruits and vegetables. Botanist David Thomas, who explored the area, listed more than 100 varieties of plants, including trees, shrubs, grasses, cereals, weeds, and other growing vegetation.

Such was the lay of the land which invited pioneers to come and live and to make it part of their lives for all generations to come.

SMALL SPOT IN A FAVORED PLACE

Among the fifty sister states Indiana is a small but favored place. Her share of the Old Northwest Territory is 36,291 square miles or 23,158,400 acres.

The French were the first white people to visit the region. After LaSalle, French voyageurs traveled from the Great Lakes toward the Southwest crossing this "small spot" diagonally. The Indian trail led between the Ohio River at its Great Falls (Louisville) to the southern point of Lake Michigan. This was the trail over which, in 1834, Solon Robinson hauled his worldly goods and family on ox-drawn wagons and horseback to become the farthest west settler in Lake County.

The Western Gazetteer, or *Emigrant's Guide*, published in 1817, devoted many pages to Indiana. Samuel Brown reported on the Knobs near the falls of the Ohio and on to the Wabash. He then described areas northward, naming flat woods, Ouiatenon country, bottoms and prairies bordering streams, woodlands, prairies, lakes, and swamps.

Surveyor D. Buck of New York writing in *Indiana As Seen By Early Travelers*, observed: "I have seen a great deal of excellent land; the prairies on the Wabash in the vicinity of Fort Harrison (Terre Haute) exceed everything for richness of soil and beauty of situation I have ever beheld. It is difficult building in Knox County and always will be on account of scarcity of mill seats. Horse mills are common and the miller takes one-eighth part of the grain for toll; customers finding their own horses. (Finding meaning feeding.) Wheat yields 68 pounds to the bushel and never gets winter killed or smutty. However, some of the land is too rich for wheat until it has been improved. Wheat is 75 cents a bushel; flour \$3 a hundred, delivered at Fort Harrison \$4; corn 25 cents a bushel; pork \$4 a hundred; beef \$4 a hundred; butter and cheese 12½ to 25 cents a pound; honey 50 cents a gallon; and maple sugar 25 cents a pound."

Men of science, geographers, botanists, surveyors, and men of religion and politics all traveled this favored place, Indiana. The publications committee of the Historical Commission in 1916 assembled the reports of 33 such travelers as part of the observance of the centennial of Indiana statehood. These cover the years from 1778 to 1833.

Hear how some extolled the virtues of this favored place. "The oak trees in Dearborn County are remarkably tall and handsome; and well suited for rails, staves, or square timber."

"By 1810 Switzerland County had 8 acres of vineyard yielding 2,400 gallons of excellent wine. In 1814 they have greatly augmented their vineyards which bearing present the observer the most interesting agricultural prospect perhaps ever witnessed in the United States."

"Sullivan County consists of a beautiful, fertile, well-watered tract of country."

"Fort Harrison prairie is a most delightful tract containing about 22,000 acres. The woodland to the east of this prairie is an elevated tract of rich soil. Springs and streams flowing from it are numerous."

"If my conjecture is correct, these prairies will be sources of abundance through distant ages."

Edmund Dana, employed as a guide by more than 1,300 persons to select for them tracts of land on which they decided to make permanent settlements, wrote of "The New Purchase": "It has been esteemed by intelligent men who have often traversed it in all directions in point of rural scenery a copious supply of pure water, fertility of soil and security of health equal to any part of the western country. The surface in this part of the tract is delightfully variegated by gentle undulations. The production of Indiana on corn, wheat, rye, barley, oats, beans, peas, Irish, sweet potatoes, and garden vegetables of every description are abundant.

"Prices of improved land . . . 15 to 20 acres cleared with a log house sell as high as \$8 an acre. Necessities . . . or rambling dispositions . . . causes (sic) the sales."

However, the ax and the rifle remained the basic tools of the pioneers. Removal of trees was the first step in occupying the forest lands. Regardless of how the trees were felled, they had to be cut, piled, and burned. Burning the timber, often at logrollings, was followed by the grubbing of briars, roots, and underbrush. Often this continued for several years before the land was ready for cultivation. Plowing new ground for cultivation was an arduous task. Plows generally were crude—wooden moldboards with metal points or shares.

The prairies gave the pioneers trouble since often the thickly-matted grass roots extended downward for more than a foot. Prairie plows cut wider but more shallow furrows than those used in breaking forested lands. So difficult was the prairie plowing that often from six to ten oxen were yoked together to pull a single plow.

WESTWARD BY WATER, OVERLAND BY TRAIL

Settlers reached Indiana Territory via the Ohio River from Pittsburgh, crossed the Ohio from Kentucky, or came overland.

Before they started down the Ohio River at Pittsburgh, they had to buy or make a boat. These boats were a mixture, an early historian noted, of "log cabin, fort, barnyard, country store."

Types of boats varied. A "pirogue" was a large canoe, 40 to 50 feet long, six to eight feet wide. It would carry a family and eight tons of household goods. A "skiff" was a wide, flat-bottom boat. It usually was attached to the larger boats as a means of going ashore.

A "batteau" was a very big skiff capable of carrying a family. It was equipped with oars and long, iron-tipped poles for "poling" upstream. "Keel boats" were a little different in that they had a heavy timber running lengthwise along the center of the bottom. These were used for moving freight upstream.

"Flatboats" were used largely for traveling downstream by families. They were as long as 20 feet, 10 feet wide and carried a hull which stood three to five feet above the water. A roofed house sat on the boat. They were moved by the current and possibly guided by a sweep. The flatboats were much used until the Civil War.

Then there were the Kentucky and New Orleans boats. The "broadhorn" was distinguished from the other two because it had two big sweeps. The "barge" might be anywhere from 30 to 70 feet long and 7 to 12 feet wide. It had a mast, sails, and rudder. If it were to be moved upstream, poles were used. It carried a covered enclosure for passengers and a fort. This fort had rifle holes through which the settlers could shoot at Indians or other foes.

The Ohio packet boat was a magnified barge. Sizes ranged from 75 to 100 feet in length, 10 to 20 feet in width. Cabins at the stern housed passengers.

Travel was done in fleets, so that one boat could come to the aid or rescue of another in case of emergency. Skilled navigators, called Western Boatmen, served as pilots.

Steamboats were common on the Ohio River by the 1820s.

For those who preferred to travel overland to the Indiana Territory, there were marked trails full of roots, ruts, and stumps. Men

women, and children came on foot, on horseback, or in huge wagons drawn by oxen or horses.

One of the most important routes was Boone's Wilderness Road. This was a trail blazed from North Carolina to the Cumberland Gap and thence to Boonesboro, Kentucky. Over this trail came thousands of pioneers. Another pioneer route across the state was the Buffalo Trace, an improved buffalo trail connecting New Albany with Vincennes.

About 1830 Hoosiers began building the Michigan Road which stretched from the site of Michigan City, south to Indianapolis, and then to the village of Madison on the Ohio River. It was twenty-four feet wide and, where necessary, seasoned oak timbers twenty feet long were laid across it. These were covered with soil taken from the roadside.

The National Road (the Cumberland Pike) was completed from the Ohio state line to Indianapolis in 1834. Later it was extended to Terre Haute.

INDIAN HUNTERS AND HUSBANDMEN

Game was plentiful. Bear, deer, and turkeys furnished food—also raccoon, opossum, prairie chickens, and doves. Fish were in every stream and lake. Pelts from the game supplied spending money for trinkets, blankets, and whiskey.

Two white villages on the Wabash—Vincennes and Ouiatenon, near the present site of Lafayette—and Fort Miami, now Fort Wayne, were fur markets for early French traders. Territorial Governor William Henry Harrison issued as many as 40 licenses to traders, as required by law, between November 20, 1801, and January 7, 1802. These licenses were good throughout the territory and these traders traveled widely to Indian villages. Furs assembled and shipped annually from Vincennes totaled about 5,000 pounds and from Ouiatenon about 8,000 pounds.

Hunting by settlers in the Indian land destroyed many wild animals. Kentuckians came across the Ohio river to slaughter buffalo, deer and bear, largely for the skins. In retribution, Indians killed hogs and cattle and broke down fences. The Indians who had long grown corn for food saw game becoming more scarce so they tended to settle into permanent villages and raise more food.

Moravian missionaries taught farming to the Delawares, Kaskaskias and Painkishaws who had settled along the White River in 1801. The Indians asked for agricultural implements, cows, and hogs rather than cash annuities. The Society of Friends (Quakers) in 1801 also sent agricultural representatives to help the Indians. A demonstration tract of about 20 acres was cleared and fenced. That fall it yielded 400 bushels of corn and more than 20 hogs ready for slaughter.

A Quaker homemaker from Fort Wayne taught the Indian women child care, cookery, and housekeeping. Friends, who were farmers near Fort Wayne, continued this demonstration work, but it was later abandoned.

A FLOOD OF PEOPLE

Early in Indiana's statehood settlers moved into the interior of the area. Southern counties were settled first, then the tide flowed northward.

Mill seats on streams were of first importance to farmers who needed their corn and wheat ground for food for their families. Men and women pioneers from the East and Southeastern states were farmers. Many of them were hunters, woodsmen, and craftsmen, too. What a self-sufficient community they made!

Look closely at Brookville—year 1816. Some of the best farms and farmers surrounded it. The village had about 80 frame buildings. The craftsmen and their crafts included: one grist mill, two sawmills, two fulling machines, three carding machines, one printing office (*The Plain Dealer*), one silversmith, two saddlers, two cabinet makers, one hatter, two tailors, four boot and shoe makers, two tanners and curriers, one chair maker, one cooper, five taverns, and seven stores. Public buildings included a brick courthouse, a markethouse and a jail.

Many communities started . . . some grew . . . others disappeared. The census of 1800 showed there were 5,641 persons in the territory. Within two decades the population had increased to a little more than 147,000. And by 1820, 35 county governments had been organized.

And so the people came. Some settled; others were just "passing through." One old Pennsylvanian, among the earliest of Indiana farmers, said, "This Indiana is the best country in the world for young men. However, many hundreds of wagons, with droves of men and beasts, four or five hundred in a drove, and at least 5,000 souls from Kentucky, have passed my house since last harvest, all bound for Missouri."

An Englishman, William Faux, wrote in 1819, that he was traveling near Washington, Daviess County, and "was passing through land as rich as a dung hill." He stayed overnight at a farm.

"My host had a large party of distant neighbors assembled to effect a corn shucking," he recorded. "All gentle, simple. They worked hard until 11 at night. Corn shucking means plucking ears of Indian corn from the stalk, and housing them in cribs, properly made to keep it in, for winter use. The stalk is left in the field. The leaves,

while half green, are stripped off and tied in bundles, as hay for horses and cattle. And good feed it is."

The early farmers worked "the year 'round' and from 'sun to sun.'" True, the work varied with the seasons, but there was no "idle season." Women worked a few hours longer since there was wool to pick, socks and stockings to knit, and clothes to mend—these being after supper jobs. In those days a boy of 13 or 14 hitched his team—oxen, horses, or mules—to a wagon or plow and did a "man's" day's work. And the girls contributed their share to the family labor.

AMBITION AND DESIRE .

Not all the early settlers came from the south. Some came from Ohio, Pennsylvania, New York, and neighboring states.

When William Henry Harrison was building his mansion on his Grouseland Estate at Vincennes, two brothers, John and William Conner, were trading with the Indians in central Indiana. The Conner brothers were reared with the Delaware Indians who settled along the White River. They became traders, interpreters, and statesmen. They established trading posts, dressed like Indians and married Indian women in tribal ceremonies.

William Conner, at one time, had possession of about 3,000 acres of land which he farmed. A visitor to his mansion described the view across the prairie as 300 acres of corn knee-high, being cultivated by two dozen men. About 1,400 acres of this land is now the Conner Prairie Farm, acquired in 1934 by Eli Lilly, who restored the mansion and other buildings. In 1964 he gave Conner Prairie Farm to Earlham College to be operated as a permanent historical museum open to the public.

Officials from Indiana's temporary capital, Corydon, came to William Conner's home to select the site of a new capital. They chose the junction of Fall Creek and White River. This site grew into Indianapolis. The Conner brothers were among this small group which picked the site of the present capital.

William Conner built a brick mansion on his farm in 1823. Pending building of the new state offices in Indianapolis, some affairs of government were conducted in the mansion. He and a partner bought a townsite on the White River four miles north of his farm and established Noblesville. He died in 1855 on a 120-acre farm near the site of the railroad station which was on the Noblesville to Indianapolis railroad.

Members of the Society of Friends (Quakers) settled all over Indiana, establishing communities around their churches. They settled mainly in the Upper Whitewater Valley.

William Forster, a Friends minister, wrote of traveling in 1821 from Washington, Daviess County, to Vincennes. He said he found the settlements more numerous than he expected and at intervals many finely cultivated farms. He held an evening meeting of Friends

in the Vincennes Court House, adding, "Methodists and Presbyterians meet in the Court House. There is also a Popish Chapel."

Of his visit to New Harmony, Mr. Forster commented: "The Rappists have 25,000 acres of land with 3,000 acres enclosed on which they grow good crops. In addition to field crops, they grow peaches, apples and melons in abundance." This may have been the beginning of the present southwestern Indiana fruit and melon industry.

Indiana settlers built many country churches. In the Little Pigeon Creek section of Perry County, where Thomas Lincoln purchased his Indiana farm, a United Baptist Church was built. He was also a carpenter and did the fine cabinet work on the pulpit and altar.

Lincoln, his wife, Nancy, and their children, came to Perry County from Kentucky. He brought with him what was said to be the best set of carpenter's tools in Hardin County, Kentucky. Among the necessities he included a steel point for a plow, a spinning wheel, seed corn, one cow, four horses, and a wagon he had built himself.

In October, 1817, he entered title at the Land Office at Vincennes, 80 miles away, to the SW quarter, Sec. 32, Twp. 4 S, R5W, Perry County. He paid \$16 down to secure the land holding. Within two months he paid \$64. To make final payments he sold the west half of the quarter section in 1827, bought 20 acres adjoining, and held 120 acres free of debt.

A year after the death of his wife, Lincoln told his children he was returning to Kentucky to ask a woman he knew as a girl and now a widow to marry him. He did this. When she agreed to become his wife, he paid her debts and they came home to his cabin. There were eight in the family.

Among them, growing up, going to the mill with corn to be ground, putting collars of corn husks plaited together on the horses as he harnessed them, clearing land, building fences for which he made rails and stakes, was a boy growing to young manhood. But he was preoccupied with such things as studying books, meeting people, and learning of the outside world on a flatboat trip to New Orleans. This boy's name was Abraham. When a man, he signed some of the world's most important documents, "A. Lincoln, President of the United States."

The year Thomas Lincoln entered claim to his Perry County acreage, John Wright, his wife, and grown daughter, Mary, settled

near Five Points, Craig Township, Switzerland County. On his wilderness farm, Wright built a rather pretentious log house. It was really two log cabins, each 20 feet square and connected by a 12-foot breezeway. These cabins had lofts accessible by an outside ladder.

The furniture, brought overland by ox teams from the disembarking point on the Ohio River, included a Music Clementi piano purchased in England. Mary Wright had been trained in music by Music Master Clementi of London. She shared her musical training by inviting neighbors to attend musicals. At her piano she gave her concert of classical selections and English ballads.

Solon Robinson founded Crown Point in 1834 and returned East in 1849 to become agricultural editor of the *New York Tribune*. He wrote of Henry Ellsworth, who resided in Lafayette, "He has 1,000 acres of corn in one piece. The uncommon high price of corn the last summer has caused growing of many extra acres of it in the Wabash Valley. It will be valuable not only to the cultivator, but to the starving millions of Europe."

Robinson prepared these figures on the cost of buying a farm in the 1830s: Prairie land costs \$1.25 an acre, and the cost of breaking the land is \$1.50 an acre. Timber land could be had for \$3 an acre. Fencing a quarter section would take 960 rods of fence. With 15,366 rails at one cent and 3,846 stakes at one-half cent, the fence would cost \$173. A well with pump would cost \$30; with bucket \$15. A log cabin would cost \$50. The total, as Robinson figured, plus some other costs, would run around \$5 an acre.

Livestock prices in 1842, he wrote, were low. Horses, \$40 to \$60; six-year-old oxen, \$35 to \$50; three-year-old steers, \$6 to \$10 each; year-old steers, \$5 each; sheep, \$1.25 to \$1.70, and cows, \$6 to \$10 each.

"Land pike variety of hogs are so cheap that stealing them is no longer a petit larceny," he noted. He quoted Berkshire and Improved Breeds at \$1 to \$1.75 per hundred pounds. Chickens could not be priced singly, Robinson added, "because we have no silver coin small enough to express their value."

In Chicago wheat brought 60 cents a bushel; corn, 21 cents; oats, 19 cents; timothy seed, \$1.50; flax seed, 87½ cents; beans, 56 cents; peas, 62½ cents; barley, 37½ cents; potatoes, 12½ cents; onions, 37½ cents.

HEAD UP AND TAIL A RISIN'

Indiana experienced a population explosion in the first half of the nineteenth century. In 1800 the territory had a population of 5,641; fifty years later it had reached nearly one million.

For instance, Elkhart County's population in 1830 totaled 935. Twenty years later it stood at 12,000, improved acreage, 67,000 acres. Real estate value exceeded \$2 million. In Hamilton County, D. C. Chipman, county fair secretary, reported 1,261 farms—56,254 acres improved, 131,371 acres unimproved. Improvements and farm implements were valued at a little more than \$1 million. Johnson County's horses totaled 5,576 with a value of \$267,272. St. Joseph County had 1,172 farms with 108,552 acres of improved land. Livestock was worth nearly \$800,000 and implements \$201,964. Peter Sharpe of Vanderburgh County observed: "Mule fever seems to be raging here, and he who can produce the finest mules is a lucky man, being able to realize good prices."

The Constitution of 1816 directed the legislature to organize a general system of education, available to all on the basis of free instruction. Money was needed to put it into operation and the poverty of pioneer life prior to 1850 did not permit anything so drastic as state taxation for education.

Illiteracy constituted a major social problem. Many skilled farmers were unable to read, but as Logan Esarey observed in the second volume of *A History of Indiana from 1850 to the Present*, "It would be a mistake to call him ignorant." *The Indiana Farmer and Gardener*, edited by Henry Ward Beecher, noted in 1845 that the number of white Hoosier adults who could neither read nor write was 38,100 of an estimated population of 868,175. By 1850, of a total population of almost a million, 72,710 adults were classified as illiterate.

Nevertheless there were schools. Nearly every township had its log school house, built by the parents. They paid the schoolmaster a small sum per child and took turns boarding him. These "masters" instructed the children in reading, penmanship, spelling, and sometimes arithmetic. The school houses were drafty, had dirt floors and log benches, and were heated with a crude fireplace.

County seminaries were encouraged but inadequate funds crippled most of them. The settlers held strong religious feelings and made

the country or village church the center of their community life. They distrusted a non-religious institution, such as the State University. As a result each religious denomination felt impelled to establish its own college.

Nearly all of the accredited colleges in Indiana today came into being between 1827 and 1860. None of these schools taught agriculture. Although a state university was designated as the summit of the general system of education proposed by the 1816 Constitution, only one such institution was founded before the Civil War. An 1820 law chartered a state seminary to be located at Bloomington. In the mid-1820s, Indiana Seminary opened its doors to students; later it became a college. In 1838 its name was changed to Indiana University.

The State Society of Agriculture succeeded in getting the 1835 Legislature to charter the Western Scientific and Agricultural College. However, no appropriations were made and the school did not materialize.

Sixteen years later the legislature created the State Board of Agriculture, giving farmers a focal point from which to advance their self-improvement. The State Board of Agriculture was organized May 27, 1851, with Governor Joseph A. Wright as its president. Among its duties were establishment of rules for the organization of county agricultural societies, 30 of which were organized by February, 1852. The board voted to hold the first state fair in Indianapolis in October of that year. In succeeding years the fair site was moved to Lafayette, Madison, New Albany, and Fort Wayne. Suspended during the Civil War, the Fair in 1866 took up permanent residence in Indianapolis.

Reports of the State Board of Agriculture during the decades when only occasional leaflets were issued by the Agricultural Division of the U. S. Patent Office give a vivid picture of efforts of farm people to improve their methods. They recount activities at state and county fairs and contain essays on corn, wheat and drainage, machinery, farmstead improvement, agricultural education, and "book farming."

William H. Breed, when president of the Clinton County Agricultural Society, said, "Farmers are becoming to heed more what used to be termed by way of derision, 'Book Farming.' A vast amount of good has been done by distribution of Patent Office Reports

among our farmers. They have awakened more interest in ditching and manuring lands than all other suggestions on farming put together."

Sam Harrow told of attempts by the Fayette County Society to establish an agricultural library and expressed the wish that the State Board of Agriculture would "petition the legislature to aid in establishing purely agricultural libraries."

County fairs engendered pride among farmers in their business. As D. C. Chipman, Hamilton County, put it, "Farmers are increasing in intelligence, wealth, and independence."

Relating the period and times to world affairs, James Tyner of Hancock County observed: "Believing in the theory that the heavy firing of the contending armies in the Crimea produced constant rains that distinguished the summer and fall of 1854, our fair board hoped the rival generals would be considerate and suspend operations for a few days. These hopes were delusive for torrents fell on the fairgrounds all the time."

Rains were bad, but politicians in campaign years had equally dampening effects. H. P. Hanna of Jay County wrote, "Progress of the first two days of the fair was retarded by the speaking of two candidates for Congress, gentlemen of tact and ability, who made speeches of considerable length."

Hanna noted advances in swine raising thusly: "Rainbowed, long legged, slab sided wind splitters with snouts so long and slim that eating slop out of a jug would seem to be more a matter of convenience than otherwise to this pioneer of Indiana are giving way to civilized hogs like the Graziers, China, etc."

Every fair featured female handicraft exhibits. And the women who exhibited stood up for their rights. In Knox County they protested it wasn't fair that H. W. Wheeler, who made and exhibited mill-made blankets, jeans and cassinettes, should compete with home handicrafts. They protested so effectively that the rules were changed to eliminate factory competition.

Trotting and pacing races were held on quarter and half-mile tracks. On a muddy track at the LaPorte County Fair, the time for the mile of Abel Vail's bay trotter was three minutes, five seconds. Seth Eason's gray pacer made it in three minutes, six seconds.

The Steven Meade family created a sensation at the Gibson County Fair. Father, mother, 12 sons and two daughters, each

mounted on a gray horse, rode into the fairgrounds, circled and came to a halt before the grandstand. The band played "Hail Columbia!" The following morning the 13 men of the Meade family, each with a team of horses and plow, came to a nearby field and held a plowing contest.

Improvement in farmsteads was emphasized. More and more farmers practiced tile drainage. Purebred livestock was being imported. A shorthorn bull was purchased for \$2,205, another for \$1,650. Markets for surplus corn, wheat, cattle, and hogs opened beyond the local mills and slaughter houses. These products moved on canals and railroads.

Short-line railroads developed in Indiana during the 1840s and 1850s. Eight of these railways fanned out directly from Indianapolis in the Central Railway System. Thirteen other through and local railroads operated in the state. These supply 66 counties in Indiana with 1,850 miles of track, said Oliver H. Smith, president of the Central Railway System. He added that railroads were being projected in the 25 counties with no rail service.

The question of federal land grants for research and education for improvement of farming was being widely debated. Congressman Justin Morrill of Vermont offered this proposition to the nation's legislative body. Hoosier farmers generally approved the idea.

Horace Greeley, famed New York editor, speaking before crowds at the Fayette County Fair, denounced the thesis that "farming is an affair of muscle only. The more urgent the proofs that no science of agriculture now exists, the more obvious it is true that one is urgently needed." Others disagreed. William D. Gallagher from Kentucky told the Miami County Fair, "Agriculture is a plain, plodding, practical art. It is the fashion to talk about the science of agriculture. This will grow only from the 'floating facts' which farmers find useful as they try them."

The State Board of Agriculture in 1859 lent support to the Morrill proposal and urged Indiana's Congressmen to "use their influence to secure passage of said bill." Three years later in 1862, the Congress passed the Morrill Act. President Lincoln signed it and the foundation was laid for a nationwide chain of land grant colleges and universities to teach agricultural and mechanical arts. Purdue University was founded in 1869 as Indiana's land grant university. Six instructors were recruited to teach the 46 students who reported for the first regular classes September 16, 1874.

THE BOOMING FIFTIES

In the decade from 1850 to 1860 agriculture brought unprecedented prosperity to Indiana's economy. About 95 per cent of the state's population in 1850 was rural. Although the transition from frontier to a more industrialized society was gradual, the change was most marked during this period.

More than three million acres of land were cleared and plowed; the value of the farms more than doubled. The 1850 census showed a little more than five million acres of improved land with an average cash value of about \$11 an acre; by 1860 this exceeded more than eight and a quarter million acres. The number of farms increased from 93,896 in 1850 to 131,826 ten years later. Value of farm implements at the start of the 1850's totaled \$6,700,000 and by the close of the decade this figure had reached nearly \$10,500,000. Livestock numbers increased and crop production improved.

Logan Esarey in the second volume of *A History of Indiana from 1850 to The Present*, points out: "There was an average gain of two horses and three milk cows to each farm, the total for the state in 1860 being 409,000 horses; 582,000 stock cattle; 2,157,375 sheep; 18,000 mules; 491,000 milk cows; 95,000 work oxen; 2,498,000 hogs. The annual crop of wheat jumped from six million bushels in 1850 to 15 million bushels in 1860; corn from 53 million to 69 million bushels; rye from 78,000 to 400,000 bushels; oats dropped from 5,655,000 to five million bushels; tobacco increased from one million to over seven million pounds; potatoes from two million to 3,873,000 bushels, and orchard products from \$324,000 to \$1,212,000 in worth. The cultivation of rice, cotton and hemp practically disappeared. . ."

Reporting to the Indiana General Assembly in 1853, Joseph A. Wright, president of the Indiana State Board of Agriculture, said: "The large surplus of pork grown in Indiana demonstrates the fact that our farmers raise too much Indian corn in proportion to the number of acres of improved land. This system of farming, if not modified by the introduction of diversified agricultural pursuits, must result in injury to the soil and loss to the farmers."

Generally, the pioneer had no regard for continued fertility of the soil—yet the soil was frequently considered the source of all true wealth. Once a field was cleared, it was planted in corn at least four successive years to kill the sprouts and give the small stumps time

to decay. Not infrequently, especially in the bottom lands, a dozen to twenty crops of corn were planted in succession before wheat was sown.

Improvement in hogs came during the 1850-60 period, and by 1860 Indiana had more hogs than any other state—an average of nearly ten for each family. The common hogs were variously known as Elm Peeler, Alligator, Land-pike, Razorback, Prairie Rooter. They ran at large until they were two or three years old. Then they were fattened on corn for several weeks prior to butchering or being driven to market. By this time they weighed between 150 and 250 pounds. But hogs better than these had begun to make their impact felt, although many farmers objected to them since when they were fat they could not walk as fast as a horse for long distances, as could the native four-year-olds.

Advances in transportation and communications undergirded this agricultural prosperity. All citizens, especially farmers, benefited as the railroad mileage increased in the decade from 228 to more than 2,100 miles of track. The effect was to bring farmers closer to the principal markets for their crops and livestock. The Mississippi River remained the chief highway for north-south commerce. Except for limited use of the Wabash and Erie Canal, that form of transportation had all but disappeared by the end of the decade. Roads, however, failed to keep pace with the improvement and extension of the railroads. They remained poor and some apparently became worse as traffic increased.

A wave of excitement swept the country at the midpoint of the nineteenth century over the possibility that plank roads would solve the highway problems. The plank road was made by placing planks about 10 feet long and two inches thick on longitudinal sleepers or mud sills. However, it was difficult to keep vehicles from breaking through the planks or slipping off the edge and overturning. Too, horses might break their legs if they stepped off or through the planks as they began to decay. By the end of the 1850s the plank road fever had subsided, but Indiana had built some 700 miles of this type of thoroughfare.

PERIOD II

1861-1916

MACHINERY, LIVESTOCK, AND SHIFTING POPULATION

Only about six per cent of Indiana's people lived in cities and towns in 1860, but this percentage had reached 14.7 per cent by 1870. The movement from farm to city continued and by 1900, 34.3 per cent of the population was urban. A decade later urban dwellers made up 42.4 per cent of the state's population. And by 1920 the proportion stood at urban 50.6 per cent, rural 49.4 per cent.

As swamps were drained and forests cleared, the improved acreage of farmland increased. In 1870 improved acreage exceeded slightly more than 10 million acres; the number of farms totaled 161,289 with the average size a little more than 112 acres. At the start of the twentieth century, improved acreage amounted to 16,680,358 acres, the number of farms 221,897 and the average size of farms 97.4 acres.

Value of implements and equipment in 1870 was \$17,676,591 in currency and \$14,141,273 in gold; 30 years later the value had risen to \$27,330,370 and by 1910 to almost \$41 million.

Because fewer men could increase output at lowered cost, Hoosiers could farm more than three times as much land in 1900 as they had half a century earlier, despite the fact that most of the population growth in these years was urban rather than rural. Mechanization represented the principal clue to the amount of land under cultivation and the increased agricultural productivity. This increased productivity resulted in a decline in farm prices. Discontent grew among farmers over high taxes, low prices for their products, railroad rates, and discrimination. The Panic of 1873 and the ensuing depression brought grass roots political action.

The Patrons of Husbandry (the Grange) was a non-partisan organization. But its leaders called a state meeting of farmers in Indianapolis for June 9-10, 1874. Five hundred delegates representing every county formed a new Independent party, adopted a platform, and nominated candidates for state offices. Although the state candidates lost in the fall election, the Independents elected 13 members of

the state legislature. This group, joined by labor, formed the Greenback Labor Party in 1875.

Meanwhile, new agronomic practices that improved production came into use. Commercial fertilizer was used in Switzerland and Floyd counties in 1870, and by 1880 Indiana farmers spent about \$340,000 for fertilizer. Ten years later farmers invested \$777,727 in commercial plant food and by 1900 the figure exceeded \$1.5 million. Limestone was first applied to fields in Clark and Dubois counties in 1875, but liming of highly acid soils did not become a general practice until around 1910.

Large crops and low prices characterized the last half of the 1880s, when corn, hog and oat prices dropped to twenty-four year lows and cattle and wheat established record lows. In September, 1890, price increases on tariff-protected manufactured goods were announced. This set off another political upheaval. Two new agricultural organizations, the Farmers Mutual Benefit Association and the Farmers Alliance, joined forces with the Grange and Union Labor party. They organized the People's party in Indianapolis, adopted a platform and nominated candidates. In the ensuing election the People's party received more than 17,000 votes.

The Panic of 1893 brought farm prices to new low levels. Hogs were so cheap that the hog buyer and farmer often agreed to "lump them off" at about \$3 a head. However, the end of free land in the West, expanded domestic and foreign markets, industrial development, and an influx of immigrants resulted in higher farm prices. By January, 1900, good to prime steers were bringing \$5.75-\$6 per hundredweight in Indianapolis. Hogs were quoted at \$4.40-\$4.50 per hundredweight. Wheat was 69¢ a bushel, corn 31½¢ a bushel and oats 26½¢ a bushel.

Meanwhile, new appliances for the home made life for farm housewives somewhat easier. Improvements in stoves, washers, and churns were substantial. Kerosene lamps had replaced the tallow candles of the pioneer days. But almost no rural homes had electricity until after 1900. Party-line telephones, however, increased rapidly at the turn of the century.

While the standard of living of Indiana farmers by 1900 was considerably improved over the previous thirty years, they were not sharing adequately in the increasing wealth which was coming from industrial centers. Farming still remained the principal support for

both manufacturing and transportation. Indiana's four leading industries—meat, flour and meal, lumber, and liquor—were based on products derived from farm and forest. And the railways were largely engaged in hauling these products to and from the farms and factories and thence to market.

Improved cattle breeds also came to Indiana beginning in the early 1870s. Milk cows were essential to the pioneer family's food supply, since most of the milk, butter, and cheese was consumed locally. Among the cattle and approximate dates of introduction, as listed by W. C. Latta in his *Outline History of Indiana Agriculture*, were Polled Angus, 1870; Hereford, 1871; Polled Durham, 1873; Guernsey, 1878; Brown Swiss, 1882. Shorthorn, Holstein, and Jersey cattle had been reported in southern Indiana prior to the Civil War.

Pioneer horses were generally inferior. There were two classes: the heavy draft horses, used by the wagoners in four and six-horse teams which traveled up to twenty-five miles a day pulling heavy loads over rough roads and the light Kentucky-Virginia breeds that were used for horseback riding, light harness and light farm work. Percheron draft horses appeared in Lawrence County in 1840, with Clydesdale, Belgian, Shire, and French Draft reported in the decade between 1870 and 1880. French and German Coach horses became popular at this time, along with Hackney and American saddle horses.

Practically all breeds of hogs were raised in Indiana between 1845 and 1900. These included Berkshire, Tamworth, Poland China (all in 1845); Chester White, 1853; Duroc Jersey and Hampshire, 1870; Yorkshire, 1872; and Spotted Poland China, 1880.

The pioneers paid considerable attention to their sheep, primarily for their wool, which was spun and then woven into cloth. Fine wool, middle wool, and long wool types were found on Indiana farms from about 1830 to 1880.

Farmers interested in better livestock organized various associations in the 1870s and 1880s. Farmers clubs were organized to disseminate information on the newest farming practices. Farm papers urged farmers to keep accounts, so they would know whether or not their various enterprises were profitable. The initial formal educational and experimental work in agriculture at Purdue University was not confined to the campus. As early as 1882 farmers' institutes were held at Crawfordsville and Columbus. The Hatch Act of 1887

offered increased federal financial aid to agricultural experiment stations.

The period from 1900 to the United States' entry into the First World War brought a general prosperity to Indiana agriculture. A growing network of improved roads, rural free mail delivery, better housing, vocational agriculture teaching in public schools, extension activities in agriculture and home economics all contributed to this situation.

E. R. McIntyre, columnist in *Better Crops*, quoted these Chicago markets in May, 1913: "Wheat, 93 cents for No. 2 northern; Hogs, \$8.50 per hundredweight; Creamery butter, 28 cents a pound. Beef Cattle, \$6.24 per hundredweight; the beef cattle markets were starting to demand cattle finished at lighter weights than the two- and three-year-olds weighing 1,600 to 1,800 pounds. Baby beef has come into the language of feeders on farms and cattle buyers. . ."

FARMERS UNITE

Indiana farmers were caught in the spreading discontent with economic conditions which mushroomed in the 1870s. Since they were largely dependent on markets far from home for their products, farmers wanted cheaper rail transportation. In the absence of regulations, freight rates at times were "all the traffic would bear." Too, many farmers had been persuaded to buy stocks and bonds in railroad companies on the promise that expansion of the rail system would bring markets for their products. Many of these railroads went bankrupt with resulting losses to investors.

Farmers complained, too, about high taxes resulting from what they considered unfair assessments of their property. And finally, the idea of some form of association among farmers for cooperation in the betterment of their lives from every standpoint appealed to them strongly.

As farmers searched for a "voice," they organized or joined groups which they believed would make their demands heard. In addition to focusing attention on agricultural problems and striving for solutions, farm organizations perhaps more importantly supplied a proving ground for leadership in rural Indiana.

The first and oldest farm organization in Indiana (and the upper midwest) was the Order of Patrons of Husbandry. The word "Grange" designated local units. Organized as a secret fraternity for men and women in 1867, it came to Indiana two years later. The first Granges were established at Honey Creek in Vigo County and at Indianapolis (Capital Grange). Purposes were social, fraternal, and educational.

Although Indiana organization moved slowly during the early years (three Granges in 1870, eight in 1871), by 1872, 46 Granges had been organized. Between October, 1873, and March, 1874, the number had increased from 467 to 1,502, perhaps spurred by the Panic of 1873. By January 1, 1875, 2,000 Granges with a membership of 60,298 were reported.

The Grange undertook cooperative business ventures during this period. However, because of lack of business experience and managerial skill, most of them failed. This resulted in substantial financial losses to many persons who became disenchanted with the entire Grange movement. A rapid decline in membership throughout the

country followed, and by October 1, 1875, the number of Granges in Indiana had decreased by 515.

During the ensuing years, the Grange in Indiana continued to seek agricultural progress through education. It remained a social, fraternal, and educational organization. In 1965 there were approximately 75 Granges with a membership of about 6,000 in Indiana.

The American Society of Equity was organized at Indianapolis in 1902—its sister organization, the Equity Union, eight years later. Its central idea was controlled marketing to compel profitable prices for all farm products. Within three years of its founding, the Society reported a national membership of 143,661, of which slightly more than 10,000 members were in Indiana. However, a policy dispute split the Society in 1907. From then until its final demise, the Society's chief strength lay in Wisconsin.

The National Farmers Union, organized in Texas in 1902 as The Farmers Education and Cooperative Union of America, came into Indiana about 1910. By 1925 it was organized in some 15 counties in southeastern Indiana. It subsequently became inactive in the state. The present-day Indiana Farmers Union was chartered in September, 1954. Its state legislative goals are listed as "a state tax system whereby all segments of the economy are treated fair and just . . . positive action on all bills affecting property tax . . . proper Indiana legislation on all bills protecting the interest of Indiana farmers."

Youngest of the farm organizations, the National Farmers Organization made its appearance in Indiana in 1956. Five or six counties in southwestern Indiana were organized; but in 1960 the NFO, having reorganized nationally with a collective bargaining program, began a state-wide organization drive. NFO's objectives were to obtain contracts with processors in order to receive cost of production plus a reasonable profit for farmers. Holding actions (withholding of products from the market) were employed. The first of these that Hoosier NFO members participated in was in the spring of 1961; others were held in the fall of 1962 and 1964.

Origin of the Farm Bureau—Indiana's largest farm organization with a membership of more than 140,000 families in 1965—was quite different from that of the other farm organizations.

Early in the present century the Land-Grant colleges were developing Extension Departments to take the results of research to

farmers and homemakers. The need for such educational programs was recognized by leading farmers who felt that each county should have a "local" agent. This gave rise to the hiring of men who would live and work in each county. Known as "County Agricultural Agents," the first of these in Indiana was L. B. Clore, who went to work in LaPorte County October 1, 1912. Within a few years most of the counties had employed agricultural agents.

These agents soon found they needed an organization of farmers in each county to help determine the educational program to be followed and to help carry it out. These organizations varied in name, but most of them were called "Better Farming Associations." However, they had no legal or financial connection with the Agricultural Extension Service.

The years immediately following the end of the First World War brought farmers problems—solutions to which went beyond education. So representatives of county "Better Farming Associations" met in Indianapolis March 25, 1919, to organize officially the Indiana Farmers Federation. Similar movements were going throughout the country and in November, 1919, the national organization was founded.

The Indiana Federation was incorporated in 1923 as the Indiana Farm Bureau. "Equality for Agriculture" was its slogan. Allied Farm Bureau service organizations were formed in the early 1920s to help improve the farmer's bargaining position. The original purchasing organization was incorporated in 1922 as the Federated Marketing Service. It was owned by the Farm Bureau, the Indiana Grange, and the Farmers Equity Elevators of Indiana.

The Farm Bureau assumed control in 1923 when the organization was renamed the Indiana Farm Bureau Purchasing Department, Inc. Four years later it was reorganized and set up as a true farmer cooperative. Its name was changed in 1930 to the Indiana Farm Bureau Cooperative Association, Inc.

From 1927 to 1930 the IFBCA acted primarily as a purchasing agent for its members. Major items bought during these years were fertilizer, petroleum products, and feed. Bought at wholesale, the items were resold at retail and the "overcharge" refunded to patrons at the end of the year.

In 1930 the Co-op built an oil blending plant to guarantee a lubricant supply for its members. Later it established fertilizer plants,

feed mills, a paint factory, and a nitrogen plant. In addition to these co-operative business enterprises, the Farm Bureau organized two insurance companies.

Stressing educational programs, the Farm Bureau became a potent force in agricultural advancement. It developed interest in community development and paid close attention to state legislation on farm matters.

FARMSTEADS, FIELDS, AND FASHIONS

Hoosier farmers contributed substantially to the food and fiber needed by the Union to win the Civil War. Thousands of them, their sons and brothers, toughened by physical labor in the fields and forests, answered the call to arms. And many of these did not survive the bloody encounters that preceded General Lee's surrender at Appomattox.

At the outbreak of conflict Indiana produced more hogs than any other state and stood second in the production of wheat. Railroads which ran from north to south supplied transportation for troops, supplies, and food. Farmers bought implements and land to take advantage of the higher prices of their products. Wheat in Chicago brought \$2 a bushel. Thousands of farm women replaced the manpower that had gone to war. Considerably improved standards of living resulted from the high prices. Log cabins and barns gave way in the post-War years to new and larger structures. Usually, the barns went up before the new houses so they could help pay for the more pretentious dwellings. Generally, a less frugal way of life came to the countryside.

Some of the houses—frame and brick—were heated with fireplaces in both upper and lower rooms. Others had as a principal source of heat, tall, round-bellied base burners trimmed with nickel plate. Kitchen ranges had fireboxes and grates big enough to hold fairly large sticks of split stove wood. The women and boys kept the big wood box filled from the pile in the backyard or from the woodhouse near the back door.

Dining rooms were large—to fit the size of the farm families. Living rooms were comfortable though plainly furnished for use. The Sunday parlor was furnished for style. One bedroom was always on the first floor with three or four upstairs. Most of these houses had cellars, the walls of which were laid up with boulders. These cool cellars served as storage places for butter, cheese, cream and eggs which were taken to town on market day and traded for groceries or other goods.

The Tippecanoe County Atlas published in 1878 contains lithographs of farmsteads set back from the road or on the side of a lane. An iron, wooden, picket, or board fence enclosed the house and yard; stake and rider rail fences set off the barn lots; frequently snake rail

fences surrounded the pastures. These illustrations showed corn being cultivated with single row hand cultivators drawn by one horse. A similar cultivator mounted on two wheels was drawn by a two-horse team driven by man on foot.

The driver rode the reaper, which cut wheat, oats and barley. This reaper swept the cut grain from the platform at intervals. It took several men and women to bind the loose grain into bundles and shock it. They made strawbands to tie the bundles. Soon self-binders with self-knotters which tied the bundles took over this function. Each shock was capped with a spread out bundle. This cap sheaf protected the heads of grain from rain and from flocks of blackbirds.

Cattle, fat hogs and a few sheep appeared in these illustrations. Mares and foals dotted the pastures. A single horse saddled with a man's western type or lady's side-saddle often stood tied to a hitching post or rail in front of the house. Teams of driving horses with fancy light double harness were shown stepping briskly along the road. Always there was a buggy whip.

Most farm families were fairly large. The early settlers looked forward to rearing boys and girls to help clear the timber, farm the land, and raise livestock. The boys as they grew helped with the farm work while the girls did the chores with the milk cows and poultry in addition to their share of the housework.

Often the boys remained at home until they reached their early twenties when they married and started farming for themselves. This start usually was made on acreage set off for them by the parents of one or the other of the couple. As a result, large farms were divided into smaller ones. Near the end of the nineteenth century the average size of an Indiana farm was about 80 acres. Some were much larger; however, many were smaller.

Portraits of "Old Settlers" in county histories published in the 1870s showed the men wearing chin whiskers or full beards. Only a few were clean shaven. Older women wore their hair parted in the middle and combed smooth toward the back in a roll or knot. The coiffeur of young women was long hair worn in a twist draped over their right shoulder. The hair was worn off the face, combed loosely and curled at the top of the head.

Sewing machines took their place in the farm houses as spinning wheels and looms were moved into the attic. Bolts of many kinds of

cloth appeared on the shelves of dry good stores. Seamstresses were hired by the day or week to come into many farm homes where they cut, fit, and sewed dresses.

The Centennial issue of *Prairie Farmer* published January 11, 1941, said of women's fashions of the early 1870s: "Walking or street dresses had two characteristics—an extravagance of trimming and a startling 'stick out' at the back. They are frightful monstrosities and you are considered outlandishly unstylish if you don't wear one. I have heard it hinted that crinoline is tied back and that crescent affairs constructed of wire and even puckered up newspapers lend their aid in giving size to the hump . . . the fashion for bustles lasted until around 1890. Their going was marked by shortened waists and lower hats."

As horses and mules replaced oxen and human power in the fields, improved implements replaced farm hand tools. These included the steel moldboard plow, the two-row cultivator, and the threshing machine.

Soil depletion was the general practice of Indiana farmers until about 1870. Unthinkingly, they drew from the accumulated plant food in the soil without attempting to restore the fertility which crops removed. Spreading animal manure by hand was a back-breaking, smelly job. But use of the manure spreader which began in the early 1880s eased this task.

Commercial fertilizers were used by farmers in a few counties in the late 1870s. However, results were disappointing as a result of the lack of knowledge of soil needs and chemical composition of the fertilizer.

Field experiments with fertilizers were begun in a few years on the Purdue University farm. W. C. Latta, professor of agriculture at Purdue, was the author of a fertilizer bulletin published in 1885. He concluded from results of four-year experiments: "In most cases the immediate effect of commercial fertilizers on soil like that of the Experiment Station Farm will not repay the cost of using fertilizer. On such soils the profits from using commercial fertilizers will depend largely on their effect on subsequent crops. At the present prices of commercial fertilizers and farm products, an increase in the yield per acre of ten bushels of wheat will not repay the cost of using 200 pounds or more per acre of such fertilizer. At present prices it is doubtful at least whether commercial fertilizers can be

used at a profit on half-worn soils similar to that of the college farm. The fertility of farms that will produce grass and clover can doubtless be maintained and improved better by a judicious system of farming and stock raising than by the extensive use of commercial fertilizers."

However, an Experiment Station bulletin published in 1891 said of further studies on use of commercial fertilizers: "Owing to a greater commercial value and a longer period of growth it will generally be more profitable to fertilize wheat or corn than oats. Previous experiments have shown the effect of stable manure to be more lasting than commercial fertilizers."

Further experimental work by the Experiment Station plus farm field demonstrations helped establish the wide use of commercial fertilizer throughout the state.

ONE-ROOM SCHOOL HOUSES

Most of the sturdy farmers and tradesmen who settled in Indiana understood that a free educational system for their children was necessary. Consequently, they agitated for its establishment. However, some of the pioneers opposed public education because they felt the cost was more than they could afford. Although the 1816 Constitution provided for a school system, the failure of citizens to permit taxation kept it from becoming a reality.

In the Constitution of 1851 the office of state superintendent of public instruction was created. In 1852 a state school tax of 10 cents on every \$100 of assessed valuation was authorized. That year, the legislature passed a law detailing a state school system. Before much was done toward its establishment the Civil War began. The war resulted in disorganization of civil life and delayed the orderly development of the school system.

Changes which followed the end of the conflict strengthened demands for good elementary schools in the growing urban centers and in the rural areas. They also sharpened public awareness of the need for training engineers, teachers and farmers. In 1873 the legislature created the office of county superintendent of schools. County school boards were organized. One-room schools sprang up over the state. Many were "Little Red School Houses."

These one-room school houses usually stood on land at a cross roads donated by farmers interested in a place for their children to obtain an education. Some were frame, some brick. The building usually was about twice as wide as it was long. A stoop crossed the front of the building. Sometimes there was a single door at the center, or two doors, one for girls, the other for boys. Unless a nearby farm well furnished water, a well was dug on the school ground. Inside was a large hall the width of the building. Hangers for outer clothing were at each end. Shelves provided storage space for dinner pails and rubbers or boots.

Seats and desks, each for two children, were in rows. All faced the front. There was a water bucket shelf near the back door, with a long handled tin dipper hanging on a nail. A large heating stove was located near the rear. At the front was a raised rostrum on which sat the teacher's desk and chair. Just in front of the rostrum was a row of

seats and no desks to which classes came for recitations. Across the front wall was the blackboard. At one side hung a wall map of the world, of Indiana, and of the country. Usually a globe and a dictionary completed the teaching aids. Sometimes there was a letter and word chart for teaching beginners. One space on the blackboard was used by the teacher in almost all classes and by the children to work out arithmetic examples. Recitation periods were ten or fifteen minutes long. Morning and afternoon recesses were fifteen minutes, and lunch time was a half, or sometimes, an hour in length.

At the back of the school house, at each rear corner of the yard, was a privy, one for the girls and one for the boys. The school yard was usually large enough for playing games such as hide-and-seek, pom-pom-pull-away, one-old-cat, and many others. The teacher always had to play.

The 1878 Tippecanoe County atlas noted: "There are twelve district schools located at various points throughout Perry Township in which instruction is given eight months a year. The advanced condition of these schools is a correct index of the enterprise and ambition of the residents."

Most statements are similar about public district schools where free education might be had. Chauncey was the name of the village in Wabash Township, Tippecanoe County. It was adjacent to the village of Kingston, the atlas continued: "The first district school in the township was built in 1852. There were twelve district schools located in various points in the township, with a competent teacher in each. The total enrollment is 670 scholars."

Zeal for making education available may be shown by quoting from the brief biography of Jesse Meharry, Jackson Township, Tippecanoe County. "To educational institutions, Mr. Meharry has always been a generous friend. He assisted in creating the first school house in his township, as well as all the school houses and churches. He donated a handsome sum toward the founding of Wabash College and the Indiana Asbury University (DePauw). He contributed to maintenance of many other schools and churches throughout the State. Prior to the location of the State Agricultural College at Lafayette, he offered his farm of 400 acres for the site of that institute. Two trustees were for accepting; two were against; and Governor Baker broke the tie in favor of Lafayette. It should be added

that Jesse Meharry offered \$5,000 toward the start of a high school in Jackson Township."

All that will be said of the location at Lafayette will be quoted from a statement of retired director of agricultural extension at Purdue, Leroy E. Hoffman, in the foreword to *Fifty Years of Cooperative Extension Service in Indiana*.

"Of course, no one had much hope of this ever becoming much of a college or university because they could not conceive that the teaching of agriculture and mechanical arts and science would be of very great interest and have much application.

"Finally, a gentleman in Lafayette who was a merchant and banker by the name of John Purdue dreamed what the great possibilities of such an institution might be. He offered the state of Indiana \$150,000 and 80 acres of land if they would put the institution in Tippecanoe County, give it his name, and make him a trustee for the rest of his life. . . .

"This was a lot of money in those days and by far the best offer that had been made to the legislature. They immediately accepted it and that is why this institution is one of the few land-grant colleges in the nation that does not bear the name of a state. It is called Purdue University."

FARMERS' INSTITUTES AND CHAUTAUQUAS

Chautauquas and Farmers' Institutes represented two separate but distinctive phases of Hoosier rural entertainment, education, and culture. They drew financial support and attendance, however, from both farm and city residents.

One of the most noted Chautauquas was held each summer about watermelon ripening time at Merom on the bluffs of the Wabash River in Sullivan County, across from Palestine, Ill. Here people camped for a week or drove in for each day's programs. Cabins and tents housed the speakers and entertainers. Agricultural teachers and speakers, who in winter attended Farmers' Institute sessions for training, taught classes in the morning. The afternoons and evenings were given to the orators, musicians, and entertainers.

Russell Conway delivered his famous lecture "Acres of Diamonds." Earlier, William Jennings Bryan had inspired and excited the audience with his "Cross of Gold" oration. Jim Mitchell, coming into prominence as a labor organizer, was escorted to the platform by the Merom Brass Band.

In 1882 W. C. Latta, a graduate of Michigan State College (now University), came to Purdue University as a teacher of agriculture. He organized the first courses in agriculture and taught all of them. When he realized that information developed in laboratory, field or feed lot meant little unless it could be put to work by the farmers, Latta began holding meetings in rural areas. This was the first form of agricultural extension in Indiana. The legislature of 1889 appropriated \$5,000 to support this adult educational program.

Prof. Latta, in his *Outline History of Indiana Agriculture*, describes these Institutes which began in November, 1889:

"At first the work was carried out with the co-operation of temporary local organizations, but within five years permanent organizations were effected in every county of the state, first as county institute associations, and later as local associations at outlying county points, wherever suitable places of meeting were available. The work was thus early brought within easy reach of every farm family in the state. With few exceptions, permanent organizations have been maintained in the several counties to the present time (1930).

"The Farmers' Institute work, as conducted in Indiana and elsewhere, is unique from the fact that, although organized primarily for and by farmers, its aim, always and everywhere, has been to interest, enlist, and benefit all classes of the local community.

"A large majority of farmers, as well as business and professional men and townspeople generally, cordially received the work and participated in the proceedings of the institute meetings."

"Being first in the field," wrote Professor Latta, "the Farmers' Institute has become the prolific mother of many other forms of Extension organization and activity, including state and district conferences and short courses; work on seed corn, dairy products, fruit, and home equipment; special railway trains; competitive exhibits of farm and home products; boys' and girls' clubs; demonstration farms and project work; specialized one-day or two-day dairy, fruit, hog, poultry, home economics, and other 'schools.'"

"Although started as a separate activity of Purdue University, the Farmers' Institute work, since the season of 1910-11, has been carried on as a division of the Agricultural Extension Department of Purdue University."

There were a total of 382 Farmers' Institutes held during the season of 1910-1911, twenty-two years after the first season, 1889-90. There were 3 three-day institutes—162 two-day, 217 one-day. In these there were 1267 sessions with an average of 159 persons per session. Every time one person attended a session, he was tallied in the count, so if he attended 3 sessions, he was counted 3 times. The total attendance for 1910-1911 season was 201,580.

As recently as 1960, 23 Indiana counties still held a total of 35 Farmers' Institutes. Augmenting the Institutes were the agricultural exhibit trains of the Extension Service. The first of these ran in 1905, making 82 station stops along the Lake Erie and Western Railroad. The last—the farm and home special—made its run March 24-28, 1947, and some 66,400 persons viewed the exhibits.

PERIOD III

1917-1966

MODERN AGRICULTURE AND THE ABUNDANT SOCIETY

Hoosier citizens, like all Americans, live in the Golden Age of all history. Never before have so many people had so many things beyond the necessities of life.

The application of science to American agriculture forms the very cornerstone of the high standard of life that all our people enjoy. American agriculture now feeds our growing population on science and technology.

This great breakthrough in agricultural productivity has occurred almost entirely in the last fifty years, and in large part in the quarter century since the start of World War II.

Technological changes have resulted in startling increases in output per acre, per animal, and per worker. Average output per worker in American agriculture has more than doubled in the last quarter century. This is a record of increased efficiency that can be matched in very few places in the American economy. This has resulted in a higher level of living for farm families and cheaper food and therefore higher living levels for urban families.

Our modern scientific agriculture, based on research and technology, is so efficient that we now feed and clothe our entire population with something less than six per cent of our workers on farms. This means that more than nine-tenths of our population is available to produce the wide variety of goods and services that make up the Abundant Society in America.

The advance in Hoosier agriculture during the last half century has been even more spectacular than for the entire nation. For example, average Indiana corn yields have moved from 39 bushels per acre in 1915 to a fabulous 94 bushels per acre in 1965—an increase of 140 per cent. Wheat yields moved from 18 to 34 bushels per acre. Soybeans, scarcely known in 1915, moved from 14 bushels per acre in 1930 to 28 bushels per acre in 1965—a 100 per cent increase. Hay yields increased by more than 50 per cent in the same interval.

At the same time our livestock programs moved ahead vigorously. Hog production more than doubled, beef production was up substantially, broiler production went from nothing to more than 25 million birds annually, turkeys from a very small number to 3.4 million birds, milk production per cow more than doubled in the 30 years since 1935, egg production per hen more than doubled, and so on and on.

In the last quarter century the physical volume of output from our farms increased better than 50 per cent, with a third to a half fewer farm workers. This means that output per worker in American agriculture has more than doubled in the last quarter century, and has roughly quadrupled in the last 50 years.

Indeed, the productivity of the Hoosier farm worker is so high that the problem in America is how to live with plenty, which is in sharp contrast with the rest of the world where there is a struggle to have enough food to prevent widespread famine and human misery.

It would be possible to fill these pages with specific illustrations, from dozens of agricultural situations, of research and development that have returned their cost a hundredfold. Yet, as we look to the future, we are aware that even today's opulence will be dwarfed beside the wonderful pleasures and opportunities in tomorrow's living that will be built upon a still more scientific agriculture than we know today.

Technological changes of the kind and rapidity we envision here can only mean an accelerated rate of social and economic adjustment in both our rural and urban communities. This will be neither easy nor painless. The best leadership among us will be challenged to guide these adjustments along constructive and beneficial pathways.

CORN, HOGS, AND CASH

Corn and hogs, like bacon and eggs, go hand in hand in Hoosierland. And that relationship covers more than half a century—from the lard type to the meat type hog; from open-pollinated corn to single cross hybrids; from bang-board to self-propelled picker sheller.

"To demonstrate the amount of corn which could be produced," the Indiana Corn Growers Association started a five-acre contest back in 1914. The Bartholomew County farmer who won that first contest—now the oldest and largest in the nation—reported a yield of 112 bushels an acre. Twenty other corn raisers joined him as charter members of the 100 Bushel Corn Club.

Indiana's average corn yield that year was 33 bushels an acre. The 168 million bushel crop was worth about 50 cents a bushel at harvest time. Cost of production amounted to approximately 37 cents a bushel. And Indiana farmers took their teams and wagons and husking pegs into the fields to harvest a little more than five million acres.

Half a century later, the 1964 five-acre title was won with a yield of 212.7 bushels an acre. However, this was more than 30 bushels an acre short of the record yield of 254 bushels an acre turned in by Joseph E. Smolek, a Starke County farmer, in 1963. For the first time in the 50-year history of the contest a single cross hybrid produced the winning yield. Twenty-one contestants became members of the 200 Bushel Corn Club.

Corn still was king with 4.7 million acres harvested. A severe drought reduced the 1964 state average yield to 72 bushels an acre. This was 15 bushels below the largest previous yield of 87 bushels an acre, produced in 1963. Yet the state's corn crop in 1964 exceeded 337 million bushels.

The 1964 crop brought about \$1 a bushel at harvest time; farmers spent 80 cents to produce a bushel of their biggest cash grain crop. State-federal agricultural statisticians reported a 1965 crop of 467.6 million bushels—a record. The average yield of 94 bushels an acre was the nation's highest.

Thus, in a half century, the state's best corn raisers had more than doubled their yields; the state average had nearly tripled and Indiana had become one of the three largest corn producing states in

the nation. How did this come about? The basic ingredients of the formula consisted of skill and research and applied technology. Farmers planted earlier, applied more fertilizer and harvested higher plant populations. An analysis of the cultural practices of the 300 farmers with highest yields in the 1964 Five-Acre Contest shows: The 100 farmers who raised the most corn (182-212 bushels an acre) planted an average of 22,363 grains an acre. They harvested an average of 20,330 productive plants an acre. Almost half of this high group of farmers (49 per cent) planted their corn before May 10. More than half of them planted in 37-38 inch rows. Too, they stepped up their use of soil insecticides. Average total fertilizer they applied per acre was 120 pounds of nitrogen, 92 pounds of phosphate and 106 pounds of potash.

A half century ago Hoosier farmers used virtually no commercial fertilizer. The extent of the use of commercial fertilizer by Indiana corn growers is shown in a report by state-federal agricultural statisticians at Purdue University. For instance, in 1965, when Indiana's 94-bushel-an-acre corn yield topped the nation, representative Hoosier farmers applied these amounts of fertilizer per acre of corn: nitrogen, 90.7 pounds; phosphate, 29.6 pounds and potash, 66.2 pounds. A similar survey in Iowa, traditionally a "tall corn" state, disclosed that Hawkeye farmers applied only about two-thirds as much fertilizer and nutrients to their corn acreage.

Through the years from the opening battle of the First World War to Viet Nam, corn has continued to be a major source of cash income for Indiana farmers. Only a major consumer of that grain—hogs—has outranked it as an income producer.

In 1964 farmers received 18 per cent of their cash income from sales of corn. Further, corn is the state's most important livestock feed, and as such, contributed to the 53 per cent of the cash farm income accounted for by sales of livestock.

From the open-pollinated varieties to the single cross hybrids is a long genetic story. Scientists found ways of controlling diseases that had reduced corn production. They developed improved, higher yielding corn varieties. Attacks by insects were turned back by agricultural chemicals.

Meanwhile, Cooperative Extension workers spread the word of these technological advances to the rural areas. Bringing attention to Indiana as one of the world's finest corn producing areas was a galaxy

of champion seed corn producers who won national and international "crowns."

Perhaps the most spectacular hybrid corn demonstration of the time was staged in 1935 when the National Corn Husking Contest was held in Fountain County. This contest was noteworthy because it was the first national husking competition in which hybrid corn was harvested. It was held on the Leslie Mitchell farm, near Newtown. Despite a heavy rain and windstorm a few days before the contest, the hybrid corn stood up well. This contrasted markedly with the neighboring fields of open-pollinated corn which had been flattened. An estimated 120,000 spectators—perhaps the largest crowd assembled in Indiana up to that time to attend a "sports" event—witnessed the contest.

The Iowa state champion won, husking 41.52 bushels in 80 minutes. This was at least five bushels more than the amount husked by any previous national winner.

Hand husking corn went out with the advent of World War II. This harvest method was replaced with mechanical picking and in the early 1960s field shelling became a widely used practice. The shelled corn was either placed in bins on the farm and dried or taken to elevators for drying and storage.

The improved corn hybrids proved so uniform in quality and nutritional value that, for all practical purposes, one farmer's corn was as good as another's. Therefore, this led to the establishment of so-called "corn banks" in the 1950s in which livestock farmers arranged with local feed mills and elevators to hold their harvested corn "on deposit," much like a checking account. When they needed the ground feed, the farmers called the elevator manager to deliver certain tonnage ground and mixed with supplement to a particular feeding formula. Deliveries then were made in bulk feed trucks to the self-feeders on the farm.

As research produced new knowledge, raising "continuous corn" also became a relatively common practice during the 1950s and 1960s. Accompanying this practice in the early 1960s was minimum tillage. And some farmers during these years began experimenting with narrow row planting—30 inches instead of 38 to 40 inches. The original logic of the 40-inch row was that it took that much space for a horse to move between rows.

Previously, growing more than two successive crops of corn on the same land was considered "mining the soil." Agronomists recommended, instead, a rotation of wheat or oats, clover and corn. However, expanding technology changed this, and raising corn continuously on the same fields for a dozen or more years became widely accepted. Yields often reached 125 to 150 bushels per acre.

Practicability of this practice came about as a result of improved cultural methods, chemical controls of soil insects and weeds, heavy application of nitrogen as commercial fertilizer, and hybrid seed.

An experimental grain developed at Purdue University, called high lysine corn, was first fed to animals there in 1965. Early trials proved its protein to be highly superior to protein of ordinary hybrid corn. It tripled the growth of white rats; later, weanling pigs gained nearly four times faster than pigs fed regular hybrid corn. High lysine corn didn't require a protein supplement when fed to growing-finishing pigs.

Development of high lysine corn began in 1964 when Purdue scientists found that a mutant gene called opaque-2 was responsible for a marked increase in lysine, an important amino acid in corn. When lysine is increased, quality of the protein improved greatly.

Importance of this new corn grew as a result of human nutrition studies. Its protein quality proved as high as the protein quality of milk in 1966 tests with Guatemalan children.

Indians were Indiana's earliest corn raisers. Then as the settlers pushed back the frontiers and cleared the land, corn became their major crop. With the developments of roads, canals and railroads, much of their crop moved to distant points. But much of it remained on the farms as livestock feed. Corn-fed hogs were driven through to Eastern cities or assembly points for shipment by water or rail. The owner was trail boss, called a "drover." Usually he brought up the rear, seeing to it that his helpers, "drivers," kept the animals moving. Lamé, sick or tired hogs were loaded into the drover's wagon and transported until they could walk again or died.

Madison early became a pork packing center. This Ohio River community was known as "the greatest porkopolis in the world at that time (pre-Civil War)." Hogs in droves of 2,000 to 3,000 were driven there, many of them "hundreds of miles from Illinois and surrounding states."

Chicago, which had become a rail and packing center, also received Hoosier-raised hogs by railroad car and later by truck. And Indiana producers found "home" markets as stockyards and packing plants came into operation at Indianapolis, Terre Haute, Muncie, Anderson, Fort Wayne, Evansville, and other growing cities.

Hogs were the first domestic animal to be sold in large numbers in Indiana. Their evolution from razorback to meat type has come from a combination of genetics and nutrition. Their type—meaning conformation and build of the animals—has changed numerous times. For instance, the chuffy lard type, popular before World War I, went out of favor because packers could not find other markets for lard when the war cut off exports. Then came the "big" type. Boars of this type weighed as much as 1,000 pounds while sows weighed from 500 to 750 pounds. They proved to be too big in size and too little in pork quality. Ton litter clubs were organized in an attempt to produce a ton of pork in six months.

Successor to the "big" type was the medium large type. These animals produced fairly lean bacon, but still carried too much backfat and interior fat.

As consumers demanded more lean and less fat on their pork chops, bacon and hams, the meat-type hog came into its own. Pure-bred breeders had kept pace, making the more desirable type animals available to commercial producers around the world. Perhaps the most striking example of progress toward the goal of lean, yet flavorful pork is furnished by carcass evaluation records of the Hoosier Spring Barrow Show held each year in Indianapolis.

Through the first 15 years of this show—from 1950 to 1965—live weight of the top 40 to 60 barrows registered a 10-pound decline per hog, from 225 to 215 pounds. Length of these carcasses increased from 29.4 to 30.6 inches; backfat dropped from 1.8 to 1.28 inches; proportion of four lean cuts rose from 49 to nearly 57 per cent and loin eye area increased by almost a half square inch.

Methods of hog raising changed too. Growing, finishing swine were raised in confinement with largely automated feeding systems. Slotted floors and new manure handling techniques were developed.

Feeder pig auctions in southern Indiana brought new income to farmers in that area. The Indiana Swine Evaluation Station at Purdue University placed emphasis on performance testing of breed-

ing stock. Feed efficiency conversion and marketing hogs by grade became important new terms in the vocabulary of hog men.

The economic importance of hogs to Indiana agriculture is best shown by the place they occupy in the state's annual farm income. In 1964 Hoosier hog raisers received more than \$283 million from sales of these "mortgage lifters." This was nearly 25 cents of every \$1 of cash farm income. And the prospect that this would go even higher was indicated by the fact that the top price of hogs on the Indianapolis market reached \$31 per hundredweight in early December, 1965. This price was the highest paid at the market since August, 1948.

SOYBEANS—CINDERELLA CROP

The Roaring Twenties brought a new economic crop—soybeans—to the Hoosier agricultural scene. By mid-point of the Soaring Sixties it was pushing corn as the state's leading cash grain crop.

A native of southeast Asia, the soybean was introduced into Indiana around the turn of the Twentieth Century. A variety breeding program was underway at Purdue University by 1906, and a seed packet distribution campaign was initiated in 1913. Farmers were encouraged to compare the varieties for hay production and, as legumes, for soil improvement.

A Purdue University agricultural experiment station bulletin published in March, 1920, suggested that "Indiana farmers should make more extensive use of the soybean. The beneficial effect of the soybean on the crop-producing power of the soil is much the same as that of clover," it pointed out. "For feeding purposes, the soybean will produce more digestible protein per acre than any other common grain or forage crop except alfalfa. . . . It is especially valuable for balancing corn in feeding rations, either as grain, hay or pasture, or with corn for 'hogging-off'."

Further emphasis on the potential of soybeans came from a series of field meetings. At one of these a formal organization was set up and later called the National Soybean Growers Association. This organization was renamed the American Soybean Association in 1924.

Indiana farmers produced 66,000 acres of soybeans for beans in 1924. About three-fourths of the crop was used for hay. State average yield that year (first in which yield records are available) amounted to 9.9 bushels an acre. The beans-for-hay acreage that year amounted to 109,000. Value of the total soybean crop exceeded \$1.4 million.

Not until 1940 did Indiana farmers harvest more soybeans for grain than hay. The grain acreage had increased to 723,000 acres, while hay acreage had risen to 548,000. Average yield was 13 bushels an acre, and value of the crop pushed up to \$8.9 million. Soybeans brought Indiana farmers \$174 million in 1964, ranking behind hogs and corn as a major source of cash farm income.

New areas of utilization of this crop have opened up in the last 25 years. Soybeans are easily processed for oil and meal and their

high nutrient value has placed them first among the protein concentrates used for animal feeds. The crop also is adapted to human uses, such as vegetable oil, and to a variety of industrial uses ranging from plastic to paper products.

Indiana farmers played a leading role in the expansion of soybean acreage throughout the nation. The first state-wide soybean yield contest was held in 1940. It was a two-acre competition and top yield was 43 bushels an acre.

In 1965 Indiana's soybean acreage reached nearly three million acres—the largest in the state's history. Further, it reflected an almost continuous upward trend which began in 1952. Most of this came from acreage formerly devoted to oats. This acreage produced nearly 83 million bushels of beans in 1965—a record crop.

As corn yields climbed, so did soybean yields. The average state yield was a record 28 bushels an acre, established in 1961 and tied in 1962 and 1965. A Benton County farmer, Charles M. Maddox, who won the state senior five-acre contest in 1962, reported a 64 bushel-an-acre yield, also a record. Development of soybeans as a major farm commodity was not without its problems. One of the early reasons for encouraging soybean planting was that as a legume, the plant would fix nitrogen from the atmosphere. When the crop was plowed under this nitrogen became available to the succeeding crop. However, larger and larger acreages went for hay or grain and were not plowed under. With this type of cropping practice, soybeans were quickly recognized as soil depleting rather than soil building. Moreover, the crop left soil exposed during the rainy season and erosion resulted.

Disease problems appeared too. *Phytophthora* root rot is the most important of these in Indiana. However, *Phytophthora* root rot resistant soybean varieties were developed by the U. S. Department of Agriculture and the Purdue University Agricultural Experiment Station in the early 1960s and have been made available to farmers.

Weed control also presented a problem to soybean raisers. When weeds and grasses were not controlled, crop losses ranged from 20 to 30 per cent. This occurs when weeds emerge early and compete directly with the young soybean plants and again at harvest. Pre-emergence herbicides and cultural practices have been combined to help solve this problem.

Impact of foreign trade on Indiana agriculture is shown most vividly in the soybean market. In 1963-64 the state ranked seventh among the fifty states in sales of farm commodities abroad. The state's farms accounted for about five percent of the total U. S. agricultural exports. During this period Indiana farms contributed a minimum of nine per cent of the feed grains sent abroad, 15 per cent of the soybeans, and eight percent of the soybean oil exported. Value of all U. S. agricultural exports in 1963-64 totaled more than \$6 billion. Of this total, Indiana's part was estimated at \$250.9 million.

DISMAL DEPRESSION DAYS

During the first World War, Hoosier farmers boosted their production of essential foodstuffs needed for America's fighting men and their allies. Beyond this, they had the job of producing food for those who remained at essential home tasks.

Governor James P. Goodrich set up a state committee on food production and conservation. Farmers plowed up permanent pasture to expand corn and wheat acreage. A farm labor shortage developed.

Home canning of fruits and vegetables became a patriotic duty. A "wet" corn crop of 1917 gave impetus to silo building—there were 30,000 silos in the state and 10,000 more were erected before the winter of 1917-18.

Victory gardens were planted and cultivated in backyards and on vacant city lots. At least 200,000 food producing gardens were growing in Indiana midway in the first year of America's participation in World War I. Forty thousand of these were in Indianapolis.

Meanwhile, prices of farm products skyrocketed. Indianapolis flour mills paid \$2.90 a bushel for No. 2 red wheat a month after America entered the conflict in April, 1917. (Later President Wilson pegged the price of wheat at \$2.39 a bushel.) Average price of hogs went up to nearly \$17 per hundredweight and average price of beef cattle to nearly \$11 per hundredweight.

These price increases encouraged many farmers to buy more land, prices of which were sharply inflated, and to go in debt for machinery and farm improvements. The end of the war brought readjustments. But farmers had learned how to apply technology and could produce more than could be consumed.

As general economic conditions worsened, Indiana farmers were trapped between declining prices and their financial obligations. By 1920 the average price of hogs fell to \$13.50 and beef cattle to \$9.30.

Governor Warren McCray, himself a farmer and livestock breeder, called Indiana farm leaders and bankers to Indianapolis in the autumn of 1921 to discuss the situation.

G. I. Christie, Director of Agricultural Extension at Purdue University, told the conference: "... farmers are getting from five to 20 cents an hour for their labor. It requires 90 hours of labor to produce an acre of corn, which this year will yield about 40 bushels

and sell at 35 cents per bushel, making only \$14 an acre for 90 hours work and from which rent and all expenses must be paid."

If the farmers had time and energy left, they spent it fighting chinch bugs which had invaded the state. Farmers controlled these pests by spreading creosote around the edges of infested fields to prevent their migration.

Meanwhile, prices continued to decline, and near the end of 1921 hog quotations at Chicago had dropped to a range of from \$5.75 to \$7 per hundredweight. December wheat on the Chicago grain market brought \$1.04 a bushel, compared to \$1.84½ a year earlier; corn was 47 cents a bushel, compared to 72 cents, and oats 32 cents as against 47½ cents. The bulk of the best steers sold from \$5.65 to \$9 per hundredweight.

"It is cheaper to burn corn than coal," a Shelby County farmer noted. "Corn is selling at 27 to 35 cents a bushel and coal sells for \$9 a ton."

Tractor and implement manufacturers found their markets shrunken by the economic squeeze on their customers. A farmer, if he had the cash or credit, could purchase what its manufacturer described as "the world's lowest priced tractor" for \$575 F.O.B. in Upper Sandusky, Ohio. This nine-horsepower, two-cylinder Whitney was designed to pull two 14-inch plows or operate a 22-inch x 34-inch thresher. "A one-man tractor that will plow 6½ to 7 acres a day," its manufacturer claimed.

Cattle feeders were having their financial problems too. Purdue's farm management department reported in February, 1922, that records of 186 cattle feeders showed an average loss of \$21.40 per head on steers fed during the winter of 1920-21 and an average loss of \$17.09 on those fed during the previous winter.

Optimists were talking about "Ten dollar hogs" in the spring of 1922. They had reached \$10 in Chicago in February after hitting a low of \$6.60 in 1921. But the following year the average price of hogs in Indiana was \$7.20 a hundred, compared to a 1918-1919 average of \$16.70.

Land prices, which peaked in 1920, tumbled and as of March 1, 1922, they had declined \$22 an acre for improved land and \$20 an acre for land without improvements. Average value of Indiana farmland with improvements in 1920 had reached \$126 an acre; without improvements the land averaged \$104 an acre.

Living conditions on Indiana's 200,000 farms, too, were something less than optimum. For, as *The Indiana Farmer's Guide* reported, "fewer than 22 per cent of Indiana farm homes have such conveniences as running water in the kitchen, lighting other than kerosene lamps, heating other than wood or coal stoves, and clothes washers run by power other than human hands."

By the mid-1920s farm prices showed some signs of recovery as hog prices reached a high of \$12.60 in 1925, but by 1928 had dropped to a low of \$9.10.

The stock market crash of October, 1929, echoed across the land. A dizzying collapse of the farm economy came within the ensuing three years. Mortgage foreclosures were numerous and farmers who were heavily in debt lost all they owned.

Seeking property tax relief, farmers and their wives gathered at the State House in Indianapolis, February 25, 1931. They asked their senators and representatives to vote for a personal income tax bill aimed at reducing the tax load on real estate. The 77th General Assembly passed the bill in its closing hours, but Governor Harry G. Leslie, on the advice of the attorney general, pocket vetoed the measure.

However, Governor Leslie called a special session of the legislature in the summer of 1932 to deal with the tax problem. The legislature passed a property tax limitation law which placed a \$1.50 ceiling on levies in cities and towns and a \$1 limitation in rural areas.

Farm prices plummeted in the next 12 months. By election week of November, 1932, hogs in Chicago were quoted at \$3.15 a hundredweight; steers \$6.91; wheat 45 cents a bushel, new corn 24 cents a bushel and oats 16½ cents. Cash farm receipts of Hoosier farmers that year amounted to \$145,753,000, about one-third of what they had been in 1929. Indiana farmers received an average price of \$3.70 per hundredweight for their hogs sold in 1932.

The winter of 1932-33 brought more despair, if not desperation, to grim-faced farmers. Indicative of the darkening situation were these signs of the times: The Indiana Taxpayers Association reported that delinquent property taxes, which on January 1, 1932, amounted to about \$13.5 million, had risen to more than \$25 million on January 1, 1933. In Knox County more than half of all taxes were unpaid. Decatur County had the smallest percentage of delinquency—4.1 per

cent. Only 19 of the state's 92 counties had less than 10 per cent delinquency.

A Sullivan County farmer held a mortgage on a neighbor's farm. His attempts to foreclose brought a visit from the neighbor and five other men. In the ensuing fracas the mortgage holder and his son were so severely beaten they died of their injuries.

At a chattel mortgage foreclosure in Henry County, neighbors of the unfortunate farmer bid in all his property for a few dollars and then returned it to him. Bona fide bidders were quietly escorted from the crowd. Cows sold for three cents apiece, horses for four to 13 cents. No bid of more than \$1 was made.

Farm organization leaders called for a moratorium on mortgage foreclosures and tax collections. Governor Paul V. McNutt informed them he lacked constitutional authority to take such action.

At the call of the Indiana Farm Bureau, an estimated 10,000 farmers met in Indianapolis February 16, 1933, to discuss the serious tax situation. They marched to the State House. There a committee called on Governor McNutt and presented unanimously adopted resolutions and petitions bearing some 50,000 signatures. The resolutions and petitions asked for enactment by the legislature of "income, sales and intangibles taxes at rates high enough to keep rates on real property at \$1 on each \$100 valuation." The committee reported to the marchers, who meanwhile had been "buttonholing" their senators and representatives, that the Governor was sympathetic to their objectives and they returned to their homes.

Sensitive to the demands of its constituents, the rural-dominated 78th Indiana General Assembly enacted a gross income tax and intangibles tax. *Prairie Farmer* noted that those legislators "accomplished more fundamental and sweeping changes than any legislature in the history of the state. First in importance is the change in the taxing system. . . . The big victory of the owners of property came with the adoption of the gross income tax. . . ." Writing in *The Hoosier Farmer*, official organ of the Farm Bureau, Lewis Taylor, first vice-president and tax director, observed, "Not since 1851 has an Indiana General Assembly accomplished as much for the 'forgotten man' nor made as much history as that of 1933. . . . An outraged sense of justice finally brought tax emancipation to property owners. . . ."

The Congress of 1933 passed the Agricultural Adjustment Act, along with several others that would have a vital effect on Indiana's agriculture. The Cooperative Extension Service was given the job of explaining the wheat control program (three meetings daily) and later the corn-hog and tobacco programs to Hoosier farmers.

Real significance of the Triple A program was that it restored confidence. As soon as the wheat allotment program went into operation, mortgage foreclosures virtually stopped. Lawsuits to collect debts declined and creditors quit pushing their debtors. All of this amounted to a restoration of belief that economically things would be better.

One of the most far-reaching of the New Deal enactments was the Rural Electrification Administration. The 1935 General Assembly passed the Indiana REMC Act and organization of cooperatives for distribution of electricity to rural areas began.

When the REA began in 1936, fewer than 24,000 Indiana farms were receiving central station electric service. By 1965 more than 99 per cent of the state's farms had electricity. The coming of electricity ended the long isolation of farm families and homes, helped increase farm production and efficiency and freed rural homemakers from drudgery.

Effect of the farm program, aimed at reducing surpluses and raising farm income, began to be felt. In 1935 cash receipts of Hoosier farmers reached \$254,209,000, of which about \$19.4 million came from participating in government programs. And in March, 1935, hogs on the Chicago market at \$8.55 a hundredweight were nearly double their price of a year earlier. Steers brought \$11.38, compared to \$6.19 in March, 1934. Wheat was up to 95 cents a bushel, a nickel more than a year previous, and corn sold for 80 cents a bushel compared to 49 cents in March, 1934.

AGRICULTURE'S CHANGING FACE

Changes in the face of Hoosier agriculture came rapidly in the 1950s and 1960s. Some of them were economic; some were social. But change—exciting, dramatic, perhaps revolutionary—never was more apparent than during the period from the Korean conflict to America's entry into the space age.

What were these changes?

Mechanization, improved crop varieties, better livestock, accelerated use of fertilizer and lime, new agricultural chemicals—many of them unknown prior to World War II plus larger farms, substitution of capital for labor. These changes largely resulted from a tremendous growth in technology and its widespread application.

The isolated farm community is gone. City limits have been practically obliterated. No longer is there a clearly defined farm population as opposed to other segments, although Indiana has become a predominantly industrial state. In 1920 the state shifted from a primarily rural-oriented one to one mostly urban. And by 1960, 62.4 per cent of the state's 4,662,451 residents lived in cities and towns.

Rural dwellers view the same television programs, listen to the same radio programs, as their city counterparts. They shop in the same supermarkets and department stores, attend the same theaters, read the same newspapers and magazines. They travel the same superhighways in comparable automobiles. Farm kitchens are as modern as city kitchens; farm homes have the same conveniences—central heating, telephones, bathrooms, and the like, as city homes.

Perhaps more important, the children of farm families share equal educational opportunities with city children through reorganized school systems. The publicly supported one-room school house—once a landmark of the Hoosier rural scene—has vanished.

Mechanization brought a new era of production for Indiana farmers. Substitution of motors for muscle began just prior to the First World War and spread rapidly in the next half century. The peak of work horse population was reached in 1914 with 854,000 horses, plus 100,000 mules, laboring on Hoosier farms. But in the spring of 1917, an estimated 2,500 tractors chugged across the fields. However, there were still 845,000 horses and 110,000 mules supply-

ing power. The decline of horse and mule power continued steadily, and by 1960, last year of a "census," only 53,000 "horses, mules and ponies" were counted. Most of these were used for recreation rather than farm power. The Agricultural Census of 1964 showed 181,086 tractors on Indiana farms.

Early tractors were steam powered. These were replaced with kerosene and gasoline powered machines. In the mid-1930s diesel-powered tractors were introduced and the decade of the 1940s brought tractors that burned liquefied petroleum gas. The all-purpose, or tricycle type, tractor made its appearance in the mid-1920s and rubber tires were added in the mid-1930s. Many types of mounted and semi-mounted implements—cultivators, planters, corn pickers, mowers—were developed. Hydraulic controls became an integral part of the tractor. Self-propelled combines for harvesting cereal grains and soybeans and picker-shellers for harvesting corn became standard machines for big acreage operations in the late 1950s and early 1960s.

Specialized equipment came into wide use after the close of the Second World War. For example, use of anhydrous ammonia, a nitrogen fertilizer in compressed vapor form, had become a common practice among Indiana farmers. Equipment delivers the gas directly into the soil where it changes form before it can escape.

Shredders and cutters, which also could be used in reclaiming brushcovered land, pulverize stalks remaining after corn harvest. Spraying equipment providing wide coverage of chemicals is used to control insects in fields.

Indiana's farmers marketed crops and livestock worth more than \$1.2 billion in 1964. Although ranked among the first 10 states in farm commodity sales, Indiana is only 38th in size among all the states.

Diversification and efficiency characterize the state's well-rounded agriculture. While corn and soybeans bring in the big crop money, burley tobacco put more than \$7 million in downstate farmers' pockets. Strawberries and melons rank high on the list, and Indiana for some years has been the nation's leading commercial popcorn producer. Hog, beef cattle, and dairy enterprises, too, account for a large part of the farm income.

Although dairy cattle numbers have declined steadily during the last 10 years, Hoosier herds enrolled in Dairy Herd Improvement Testing programs outproduce their national counterparts. During

the 1963-64 testing year, Indiana cows averaged 11,724 pounds of milk and 458 pounds of butterfat. The national average stood at 11,685 pounds of milk and 447 pounds of butterfat.

Sale of cattle and calves accounted for 13 per cent of the cash receipts from farming, or a little more than \$162 million.

While feeding cattle remains a major farm enterprise, southern Indiana farmers are finding a new use through forages for their rolling land. Beef cow herds now dot the picturesque landscape north of the Ohio River, and feeder calves have taken their place in the last decade as a "new" agricultural enterprise. Feeder calf auctions throughout this area have brought additional gross income at the rate of more than \$2 million a year to downstate farmers.

These products of the land came from a declining number of farms and fewer farmers. This trend has been continuing for a generation. Yet one average American farmer produces enough food and fiber for himself and 32 other persons, an achievement unmatched anywhere else on the earth. In contrast, 35 years ago he produced enough for himself and nine other persons. One good Hoosier commercial farmer produces enough food for more than 100 people—some of the best go as high as 200.

State-federal agricultural statisticians at Purdue University estimate that 119,000 farms, totaling 18.9 million acres, were being operated in 1965. This represents a two per cent decline in the number from 1964 and 100,000 fewer acres in farmland. Interstate highways, industrial expansion, shopping centers and suburban residential development account principally for the smaller total farmland.

But the average size of Indiana farms increased to 159 acres in 1965, three more than a year earlier. And the average value of this farmland and buildings reached a record high of \$311 an acre on March 1, 1965. Average per farm value of Indiana farms was calculated to be \$51,000, eight per cent more than on March 1, 1964. Total value of farmland was \$5.6 billion.

Equipment, machinery, livestock, and supplies on these farms were valued in excess of \$2 billion. And the owners and operators of these farms paid out more than \$547 million in cash purchases of supplies. Of these purchases about \$275 million went for feed, seed, and fertilizer. Another \$104 million were spent for repairs and operation of capital items, while miscellaneous operating supplies,

such as pesticides, herbicides, hardware and veterinary medicine, represented an expenditure in excess of \$20 million.

Capital expenditures, excluding labor, amounted to \$150 million, including tractors, trucks, automobiles, building material, and machinery, such as combines, drills, planters, and tillage tools.

Upwards of 40 per cent of the labor force in Indiana is associated with some phase of the food and fiber business. This includes those who manufacture, distribute, and service an expanding market for farm supplies. In addition to the farm producers, this work force covers food marketing and distribution employment.

Livestock and livestock product sales brought Hoosier farmers \$674,211,000, or 53 per cent of the total. Cash receipts from crops amounted to \$528,366,000 or 41 per cent. Government payments of \$77,747,000 accounted for the remaining six per cent.

Realized gross income per farm averaged \$11,546. Farm production expenses amounted to \$8,100, leaving a realized net income per farm of \$3,446.

Historically, farm incomes have been lower than nonfarm incomes. To supplement their incomes, more than one-third of the farmers in Indiana worked off their farms 100 days or more.

As farming became more a business than a "way of life," larger amounts of capital were required and need for managerial skill increased. Indicative of this trend is a comparison of records of more than 500 Indiana farmers who cooperated with Purdue University's agricultural economics department in an annual farm record project. These farmers are better than average; their farms are larger than average.

Average net farm income in 1964 amounted to \$11,677; in 1954 this figure was \$8,373. Average net farm income is the net cash income adjusted for changes in inventory values less the charge for unpaid family labor.

The average capital investment in 1964 amounted to \$145,136, about the same as an average supermarket, and nearly twice as much as the investment of \$76,122 ten years earlier. The average size of these farms in 1964 was 368 acres, 111 acres larger than the average in 1954. These farmers had an average net cash income in 1964 of \$12,768, compared to \$6,994 a decade earlier.

Cash farm operating expenses averaged about \$87 an acre in 1964; this was about \$16 an acre more than in 1954. Largest expense

item was purchased feed, \$6,681, compared to \$4,374 in 1954. Machinery and equipment expenses totaled \$7,170, as against \$3,881 10 years earlier, and livestock purchases amounted to \$5,097, in contrast to \$2,532 in 1954. Average return on total farm investment was 4.1 per cent in 1964. In 1954 this return was 7.7 per cent.

Clearly, the Indiana commercial farmer, midway through the 1960s, had become a businessman of substance.

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